

Claims

1 1. A modulator of light comprising  
2 an interference cavity for causing interference  
3 modulation of the light, the cavity having a mirror, the  
4 mirror comprising a corrugated surface.

1 2. A modulator of light comprising  
2 an interference cavity for causing interference  
3 modulation of the light to produce a color condition visible  
4 to an observer, the color condition being determined by the  
5 spatial configuration of the modulator.

1 3. The modulator of claim 2 wherein the  
2 interference cavity comprises  
3 a mirror and  
4 a supporting structure holding the mirror,  
5 and wherein the spatial configuration comprises the  
6 configuration of the supporting structure.

1 4. The modulator of claim 2 wherein the  
2 interference cavity comprises  
3 a mirror, and wherein  
4 the spatial configuration comprises patterning of  
5 the mirror.

1 5. The modulator of claim 2 wherein the  
2 interference cavity comprises  
3 a mirror, and  
4 a supporting structure holding the mirror, and  
5 wherein the supporting structure is coupled to a rear  
6 surface of the mirror.

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1           6. A structure for modulating light comprising  
2           modulators of light each including an interference  
3           cavity for causing interference modulation of the light,  
4           each of the modulators having a viewing cone,  
5           the viewing cones of different ones of the  
6           modulators being aligned in different directions.

1           7. The structure of claim 6 in which the viewing  
2           cones of the different modulators are aligned in random  
3           directions.

1           8. The structure of claim 6 in which the viewing  
2           cones of the modulators are narrower than the viewing cone  
3           of the overall structure.

1           9. A structure for modulating light comprising  
2           modulators of light each including an interference  
3           cavity for causing interference modulation of the light, and  
4           a liquid medium in which the modulators are  
5           suspended.

1           10. A structure for modulating light comprising  
2           modulators of light each including an interference  
3           cavity for causing interference modulation of the light, and  
4           an optical compensation mechanism coupled to the  
5           modulators which enhances the optical performance of the  
6           structure.

1           11. The structure of claim 10 in which the  
2           mechanism comprises a combination of one or more of a  
3           holographically patterned material, a photonic crystal  
4           array, a multilayer array of dielectric mirrors, or an array  
5           of microlenses.

1           12. The structure of claim 1 wherein the brightness  
2           and/or color are controlled by error diffusion.

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1 13. A modulator of light comprising  
2 an interferometric modulator, and  
3 an optical fiber coupled to the interferometric  
4 modulator.

1 14. The application of claim 13 wherein the IMod is  
2 used in the analysis of chemical, organic, or biological  
3 components.

1 15. An information printing system comprising  
2 an array of interference modulators of light,  
3 a lens system, and  
4 a media transport mechanism.

1 16. An image capture system comprising  
2 an array of interference modulators of light,  
3 a lens system, and  
4 a media transport mechanism.

1 17. An information projection system comprising  
2 an array of interference modulators of light,  
3 a lens system,  
4 mechanical scanners, and  
5 control electronics.

1 18. The system of claim 17 in which the control  
2 electronics are configured to generate projected images for  
3 virtual environments.

1 19. The application of claim 18 in which the array  
2 includes liquid crystals or microelectromechanical  
3 modulators.

1 20. A product comprising  
2 an operational element, a display element,  
3 a housing enclosing the operational element and  
4 having a display element, the display element including a  
5 surface viewed by a user, and  
6 an array of interference modulators of light on the  
7 surface.

1 21. The product of claim 20 in which the  
2 operational element comprises a personal communications  
3 device.

1 22. The product of claim 20 in which the  
2 operational element comprises a personal information tool.

1 23. The product of claim 20 in which the  
2 operational element comprises a vehicular control panel.

1 24. The product of claim 20 in which the  
2 operational element comprises an instrument control panel.

1 25. The product of claim 20 in which the  
2 operational element comprises a time keeping device.

1 26. The product of claim 20 in which the  
2 operational element comprises an article of clothing or  
3 portion thereof.

1 27. The product of claim 20 in which the  
2 operational element comprises an item of jewelry.

1 28. The product of claim 20 in which the  
2 operational element comprises a sporting good.

1 29. The product of claim 20 in which the array  
2 substantially alters the aesthetic or decorative features of  
3 the surface.

1 30. The product of claim 29 in which the aesthetic  
2 component responds to a state of use of the consumer  
3 product.

1 31. The product of claim 29 in which the aesthetic  
2 component is downloaded or derived from an external source.

1 32. The product of claim 29 wherein the array also  
2 provides information.

1 33. The application of claim 29 wherein liquid  
2 crystals, field emission, plasma, or organic emitter based  
3 technologies and associated electronics are used as the  
4 modulation array.

1 34. The device of claim 1 comprising an application  
2 incorporating aggregate arrays of IMods.

1 35. The application of claim 34 wherein the array  
2 is used to display information on signs or billboards.

1 36. A vehicle comprising  
2 a body panel,  
3 an array of interference modulators of light on a  
4 surface of the body panel, and  
5 electronic circuitry for determining the aesthetic  
6 appearance of the body panel by controlling the array of  
7 interference modulators.

1 37. A building comprising  
2 external surface elements,  
3 an array of interference modulators of light on a  
4 surface of the body panel, and  
5 electronic circuitry for determining the aesthetic  
6 appearance of the surface elements by controlling the array  
7 of interference modulators.

1 38. A full color active display comprising  
2 a liquid crystal medium, and  
3 interferometric elements embedded in the medium.

1            39. A structure comprising  
2            a substrate,  
3            micromechanical elements formed on the surface of  
4 the substrate, and  
5            electronics connected to control the elements, the  
6 electronics being formed also on the surface of the  
7 substrate.

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